

CLAIMS

What is claimed is:

1. A shelving assembly adapted for use in a refrigerator and other articles employing shelving, characterized in that said shelving assembly comprises;
a shelf panel composed of glass;
a plastic rim sized and configured in a manner so as to provide for said plastic rim to be secured around at least a portion of the perimeter of said shelf panel; and
securing means adapted to be heated and made pliable so as to provide retention and support for said shelf panel.
2. A shelving assembly in accordance with claim 1, characterized in that said securing means comprises a plurality of heat stake ribs positioned at various locations around said shelf panel.
3. A shelving assembly in accordance with claim 2, characterized in that said securing means further comprises a plurality of heat stake pads, with each of said pads associated with a different one of said heat stake ribs.
4. A shelving assembly in accordance with claim 2, characterized in that said securing means further comprises at least one heat stake pad, with said heat stake pad associated with at least two of said heat stake ribs.
5. A shelving assembly in accordance with claim 2, characterized in that:
said plurality of heat stake ribs are configured so that at least two of said heat stake ribs are located adjacent each lateral side of said shelf panel; and
said securing means further comprises a plurality of heat stake pads, with one of each of said heat stake pads associated with all of said heat stake ribs adjacent a lateral side of said shelf panel.
6. A shelving assembly in accordance with claim 1, characterized in that:

said securing means comprises at least one heat stake rib initially projecting downwardly from said plastic rim; and

said heat stake rib is adapted to be heated and made pliable, and while in a pliable state turned inwardly and below said perimeter of said shelf panel, so that at least a portion of said heat stake rib abuts an underside portion of said shelf panel.

7. A shelving assembly in accordance with claim 6, characterized in that said heat stake rib is formed around said perimeter of said shelf panel through the use of a small radius tool.

8. A shelving assembly in accordance with claim 6, characterized in that said heat stake rib is formed around said perimeter of said shelf panel through the use of a large radius tool.

9. A shelving assembly in accordance with claim 1, characterized in that said securing means comprises:

at least one heat stake rib initially projecting downwardly from said plastic rim;

at least one heat stake pad adapted to be positioned on said heat stake rib and heated so as to make pliable said heat stake rib; and

when said heat stake rib is heated to an appropriate temperature, upwardly directed pressure may be exerted against said heat stake rib so as to secure at least a portion of said heat stake pad against an underside portion of said shelf panel.

10. A shelving assembly in accordance with claim 9, characterized in that: said heat stake pad comprises an aperture extending through said heat stake pad, with said aperture sized so as to receive said heat stake rib;

said heat stake rib is heated and received within said aperture of said heat stake pad, thereby making said heat stake rib pliable; and

when said heat stake rib is sufficiently pliable, said heat stake rib is deformed against an underside of said heat stake pad, so as to cause said heat stake pad to abut an underside of said shelf panel.

11. A shelving assembly in accordance with claim 1, characterized in that said securing means comprises at least two heat stake pads, each having an L-shaped configuration.

12. A securing means in accordance with claim 11, characterized in that:
said securing means comprises a plurality of heat stake ribs; and
each of said at least two heat stake pads comprises a plurality of apertures extending there through, with each of said apertures sized so as to receive one of said heat stake ribs.

13. A shelving assembly in accordance with claim 2, characterized in that said heat stake pads are constructed of ABS plastic.

14. A shelving assembly in accordance with claim 1, characterized in that said shelving assembly further comprises means comprising an adhesive located intermediate said plastic rim and said shelf panel, and providing for a leak-proof seal between said plastic rim and said shelf panel, and for rigidly securing said plastic rim to said shelf panel.

15. A shelving assembly in accordance with claim 14, characterized in that said retention and support provided by said securing means is additional to any retention and support provided through said use of said adhesive.

16. A shelving assembly in accordance with claim 1, characterized in that such shelving assembly may be stationary or facilitate sliding movement, as is desired, on a ribbed liner of a refrigerator.

17. A shelving assembly in accordance with claim 1, characterized in that:
said plastic rim extends around the entirety of the periphery of said shelf panel;
said plastic rim is of a unitary and integral design; and
said plastic rim comprises an upwardly projecting backstop extending across the entirety of a rear portion of said plastic rim.

18. A shelving assembly in accordance with claim 1, characterized in that:
said plastic rim extends around the entirety of the periphery of said shelf panel;
said plastic rim is of a unitary and integral design; and
said plastic rim comprises a downwardly projecting forward lip having an acute cross-section, and acting in part as a bumper to prevent damage of said shelving assembly from articles that may be knocked against a forward portion of said shelving assembly, and further acting in part as a handle to facilitate stationary positioning or sliding movement on a plastic ribbed liner of a refrigerator.

19. A shelving assembly in accordance with claim 1, characterized in that said plastic rim comprises:

- a horizontally disposed section;
- a downwardly projecting section integral with said horizontally disposed section;
- an additional downwardly projecting section integral with said horizontally disposed section; and
- the combination of said horizontally disposed section, downwardly projecting section and additional downwardly projecting section form a groove.

20. A shelving assembly in accordance with claim 19, characterized in that:
said horizontally disposed section of said plastic rim projects inwardly and terminates in a flat plane;
said flat plane provides for a spacial area formed between a lower surface of said horizontally disposed section and an upper surface of said glass shelf panel; and
said adhesive is provided within said spacial area, and utilized to facilitate securing of said glass shelf panel to said plastic rim.

21. A shelving assembly in accordance with claim 14, characterized in that:
said shelving assembly further comprises at least one slot formed between said plastic rim and said glass shelf panel;
said plastic rim comprises a flat plane;
within said at least one slot, said adhesive is provided so as to secure and couple

together said glass shelf panel and said plastic rim while providing a leak-proof barrier to liquids; and

said at least one slot aids in flow of said adhesive during the manufacturing process.

22. A shelving assembly in accordance with claim 14, characterized in that said adhesive comprises a reactive polyurethane hot melt or light cured acrylic adhesive.

23. A shelving assembly in accordance with claim 1, characterized in that said shelving assembly further comprises:

a horizontally disposed lower ledge depending from a downwardly projecting member of said plastic rim; and

a plastic stop depending downwardly or upwardly, as desired, from said horizontally disposed lower ledge.

24. A shelving assembly in accordance with claim 14, characterized in that said shelf panel includes decorative means for concealing the view of said adhesive.

25. A shelving assembly in accordance with claim 14, characterized in that said shelf panel is decorated with frosting or etching so as to conceal viewing of said adhesive.

26. A shelving assembly in accordance with claim 1, characterized in that said shelving assembly comprises a metal frame for supporting said glass shelf panel and plastic rim.

27. A shelving assembly in accordance with claim 26, characterized in that such shelving assembly further comprises means for providing slidable movement of said shelf panel relative to said metal frame.

28. A shelving assembly in accordance with claim 26, characterized in that said metal frame comprises;

a forward and substantially horizontally disposed frame member;

a further substantially horizontally disposed frame member positioned to the rear of said metal frame;

a pair of opposing and parallel sideplates; and

means for coupling said frame members to said sideplates.

29. A shelving assembly in accordance with claim 28, characterized in that each of said sideplates comprises means for removably locking said shelving assembly to walls of said refrigerator and other articles.

30. A shelving assembly in accordance with claim 26, characterized in that: said plastic rim extends around the entirety of the periphery of said shelf panel; said plastic rim is of a unitary and integral design; and said plastic rim comprises an upwardly projecting backstop extending across the entirety of a rear portion of said plastic rim.

31. A shelving assembly in accordance with claim 26, characterized in that: said plastic rim extends around the entirety of the periphery of said shelf panel; said plastic rim is of a unitary and integral design; and said plastic rim comprises a downwardly projecting forward lip having an acute cross-section, acting in part as a bumper to prevent damage of said shelving assembly from articles that may be knocked against a forward portion of said shelving assembly, and further acting in part as a handle to facilitate sliding movement relative to said metal frame.

32. A shelving assembly in accordance with claim 26, characterized in that: said metal frame comprises a pair of opposing and parallel sideplates; and each of said sideplates comprises an outwardly or inwardly projecting section, or is flat as is desired, with each of said flat, outwardly, or inwardly projecting sections being receivable onto said grooves of said plastic rim.

33. A shelving assembly in accordance with claim 14, characterized in that:

said plastic rim comprises a substantially horizontally disposed section, projecting inwardly and terminating in a flat plane;

said flat plane provides for a spacial area formed between a lower surface of said horizontally disposed section and an upper surface of said glass shelf panel; and

said adhesive is provided within said spatial area, and utilized to facilitate securing of said glass shelf panel to said plastic rim.

34. A shelving assembly in accordance with claim 27, characterized in that:

said metal frame includes a pair of opposing and parallel sideplates;

said plastic rim comprises a pair of grooves;

said sideplates comprise outwardly or inwardly projecting members or flat sideplates, as desired; and

said slidable movement of said glass shelf panel relative to said metal frame is provided through relative interaction of said outwardly or inwardly projecting members of said sideplates or flat sideplates, as desired, to said plastic rim through said grooves.

35. A shelving assembly in accordance with claim 34, characterized in that

said slidable movement is achieved without requiring any additional modifications to said shelving assembly.

36. A shelving assembly in accordance with claim 26, characterized in that;

said metal frame includes a pair of opposing and parallel sideplates; and

each of said sideplates is of a completely flat configuration, with each of said sideplates being receivable onto grooves of said plastic rim.

37. A shelving assembly in accordance with claim 26, characterized in that

said shelving assembly further comprises means comprising an adhesive located intermediate said plastic rim and said shelf panel, and providing for a leak-proof seal between said plastic rim and said shelf panel, and for rigidly securing said plastic rim to said shelf panel.

38. A shelving assembly in accordance with claim 37, characterized in that

said adhesive comprises a reactive polyurethane hot melt or light cured acrylic adhesive.

39. A shelving assembly in accordance with claim 27, characterized in that said shelving assembly further comprises:

a horizontally disposed lower ledge depending from a downwardly projecting member of said plastic rim; and

a plastic stop depending downwardly or upwardly, as desired, from said horizontally disposed lower ledge.

40. A shelving assembly in accordance with claim 39, characterized in that: said shelving assembly further comprises a horizontally and inwardly or outwardly, as is desired, depending metal protrusion;

said metal frame comprises metal sideplates, with said inwardly or outwardly depending metal protrusions extending therefrom; and

the combination of said metal protrusions and said plastic stop provides for a stop mechanism for sliding movement of said shelving assembly.

41. A shelving assembly in accordance with claim 40, characterized in that said metal protrusion is punched-out, formed, or fastened so as to be horizontally depending or vertically depending, as is desired.

42. A shelving assembly in accordance with claim 26, characterized in that said shelving assembly is stationary and further comprises;

opposing sideplates of said metal frame depending vertically downward or depending inwardly from said shelving assembly;

said sideplates comprise a cantilever or metal frame, and are attached to said plastic rim by screws, molded into said plastic rim, or snapped onto said plastic rim;

a plastic engagement mechanism extending across a front and/or rear portion, as desired, of said shelving assembly, said plastic engagement mechanism including a fitted slot for capturing a front or rear frame member, as desired, in a snap fit configuration; and

said front or rear frame member is coupled to remaining portions of said metal frame.

43. A shelving assembly in accordance with claim 42, characterized in that: said shelving assembly further comprises a rear plastic rail having a downwardly projecting section;

positioned at a terminating end of said downwardly projecting section is a horizontally disposed section substantially perpendicular to said downwardly projecting section;

said downwardly projecting member and said horizontally disposed member form a slot; and

said shelving assembly further comprises a rear frame member, interconnected to said sideplates, and located within said slot formed in said rear plastic rail.